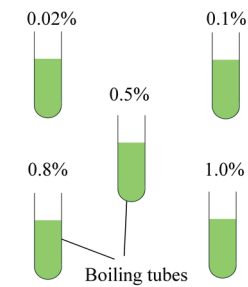


4.7 (b) To investigate the influence of carbon dioxide concentration on the rate of photosynthesis

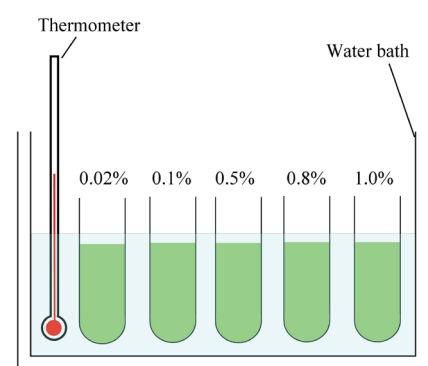
1



0.02% 0.1%
0.5%
0.8% 1.0%
Boiling tubes

Fill each boiling tube with a different concentration sodium hydrogencarbonate solution and label.

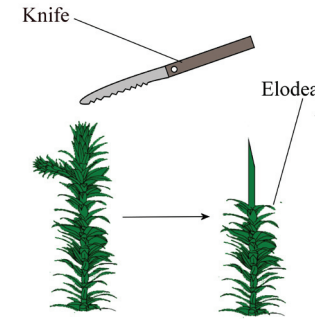
2



Thermometer
Water bath
0.02% 0.1% 0.5% 0.8% 1.0%

Put the boiling tubes in a water bath at 25°C until they reach this temperature.

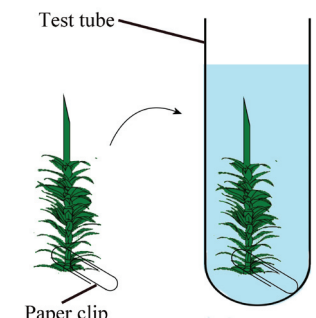
3



Knife
Elodea

Cut the stem of the elodea at an angle. Remove several leaves from the cut end of the stem.

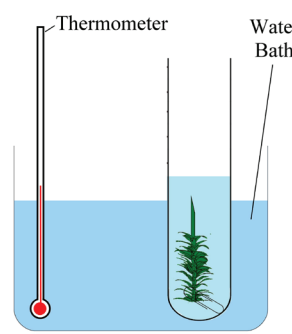
4



Test tube
Paper clip

Hook a paper clip onto the end of the elodea. Drop the elodea, stem up, into the boiling tube containing the 0.02% solution.

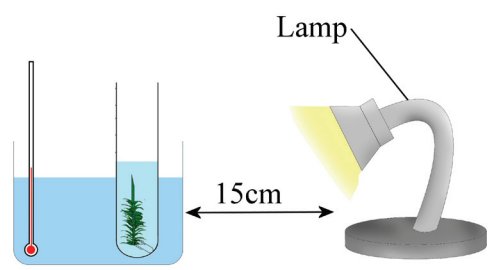
5



Thermometer
Water Bath

Place the boiling tube containing the elodea into a water bath at 25°C.

6

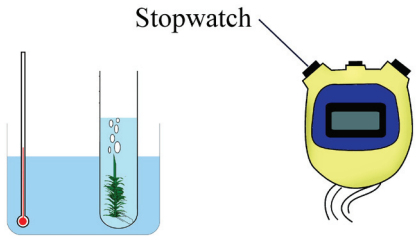


Lamp
15cm

Switch on the light source and place the water bath containing the elodea 15 cm from the lamp. Wait for 5 minutes.

Always remember – Leave time to tidy up *This page can be printed in colour from the accompanying DVD*

7



Observe bubbles being released from the cut end of the stem. Count and record the number of bubbles released per minute. Repeat twice and get an average.

8

Repeat the experiment using the different concentrations of sodium hydrogencarbonate solution.

Table of Results

NaHCO ₃ Concentration	Trial 1 (No. of bubbles/min)	Trial 2 (No. of bubbles/min)	Trial 3 (No. of bubbles/min)	Average (No. of bubbles/min)